Becoming Digified - some time-related considerations for worthy and appropriate digitalization

Kivelä, Mikael

Association for the Advancement of Computing in Education (AACE)
2018-07

Kivelä , M 2018 , Becoming Digified - some time-related considerations for worthy and appropriate digitalization . in T Bastiaens , J Van Braak , M Brown , L Cantoni , M Castro , R Christensen , G V Davidson-Shivers , K DePryck , M Ebner , M Fominykh , C Fulford , S Hatzipanagos , G Knezek , K Kreijns , G Marks , E Sointu , E Korsgaard Sorensen , J Viteli , J Voogt , P Weber , E Weippi & O Zawacki-Richter (eds) , Proceedings of EdMedia: World Conference on Educational Media and Technology . Association for the Advancement of Computing in Education (AACE) , Amsterdam, Netherlands , pp. 456-461 , edMedia + Innovate Learning World conference on educational Media and Technology , Amsterdam , Netherlands , 25/06/2018 . < https://www.learntechlib.org/primary/p/184232/ >

http://hdl.handle.net/10138/327002

unspecified
acceptedVersion

Becoming Digified - time-related considerations for worthy and appropriate digitalization

Abstract: Why do some innovative education projects fail to innovate or educate? Do they fail for worthy reasons? This present paper proposes four aspects for examining digitalization in discourse and practice. To test these aspects this paper questions a reasonably innovative and successful course combining contemporary Virtual Reality equipment with visual arts pedagogy. By examining 1) historicity and novelty, 2) irreversibility, 3) speeds of change and 4) sustainability this paper attempts to help us to distinguish actual progress from mere change. This dialogue outlines a framework for the process of becoming digified. In this process towards dignified digitality digital elements mix with or displace other elements of a given whole while maintaining a balance between the amount of change and the available resources.

This present paper discusses employing digital means in education based on four time-related aspects. The point is to cultivate appropriateness and worth. Therefore, this paper hopefully resonates with the forthcoming keynote addresses by professors Pierre Dillenbourg and Heli Ruokamo. Basically this paper elaborates the assertion "The way forward is paradoxically to look not ahead, but to look around" (Brown & Duguid 2000, p. 8). To help us look around and particularly beyond buzzwords this paper proposes a new term: digified. Becoming digified is the process of striving towards dignified digitality. The Latin term *dignus* means appropriate, fitting or worthy. Thus, if is something is digified, it contains fitting digital elements. If we understand digitalization to be something more than a synonym for digitization, that is converting something into digital form, then what could it be? Let us begin with an example. Michael Veal (2013, p. 199) uses the term digitalization to describe the radical shift in Jamaican music scene in 1985 following the breakthrough of the cost-effective "cheap Casio keyboard". He writes:

> *"Most of Kingston's live studios were closed within months, and the newly crowned Jammy and his assistants ...would go on to lay the foundations for the digital age of Jamaican popular music."*

This example has two definite advantages compared to most texts addressing digitalization. Firstly, it deals with concrete events that have already happened and secondly, these events were clearly observable and traceable. We seldom have the luxury of observability and traceability when dealing with project proposals, course plans and other future-oriented texts. This present paper is an attempt to clarify and organise my experiences of working with information and communication technology for the last twenty years. Most of this time I've supported and developed the use of ICT in universities through administrative work as well as teaching and research. All these individual projects and tasks have one thing in common: things tend to be complex. Therefore, I am willing to risk sounding like a has-been and a left-over from a past epoch and claim it still is worthwhile to slow down a bit in order to broaden and deepen ones' insight into whatever the current buzzwords might entail. This present paper does the 'looking around' of Brown and Duguid by looking at four time-related aspects and asking questions in order to fittingness of the digital elements involved.

The four theory-oriented aspects proposed in this paper are illustrated and tested with examples from a course which explored the use of virtual reality (VR) in visual arts. This course was a part of a larger set of courses in the University of Helsinki for students specializing in visual arts pedagogy as a part of their teacher training. Primary school teachers like the participants of our example course complete a Master of Arts either in education or educational psychology and often specialize in one or more

Mikael Kivelä, University of Helsinki

subjects they are going to teach. All the sixteen students and the teacher were rather well versed in visual arts in general but were new to VR and creating 3D objects with software tools. Therefore the course was designed to include collective and collaborative exploration of new ways and means to teach visual arts. Nevertheless, all the students used a wide array of techniques including painting, engraving and printing as well as drawing on a variety of media. All the works were inspired by a jointly decided theme, namely Alice in Wonderland by Lewis Carroll.

The course started in mid-September 2017 and closed with an exhibition of the created works entitled Alice in Wonderlands. VR works comprising five small virtual worlds (see https://vimeo.com/244831247) were exhibited in the grand opening 24 November as well as 27 and 28 November 2017 with student facilitators guiding visitors in the use of the VR equipment. The exhibition of other works created during the course was open until 8 December 2017. The VR works were created on a HTC Vive VR -set using primarily Google Tilt Brush. Additional 3D objects were created using Google Blocks and Autodesk Remake for photogrammetry, a technique for creating 3D models of photographed objects. In addition some of the students used a variety of other digital devices and software packages for photography, videography, sketching, and image manipulation. The process was documented both through research conducted by the teacher as well as social media content produced by the students. The course was planned by the teacher together with an e-learning expert with a long-term commitment both to visual arts and VR.

First aspect - historicity and novelty

In order to 'look around' to consider whether something is digified we might as well start with the past. As with any claimed change it may be worthwhile to ask what actually changes and in what ways? Both innovation and novelty stem from Latin *novus* meaning for example new, fresh, recent and unusual. This implies a difference to a number of things, which are considered to be usual or old in comparison. Here historicity is understood to denote that things happen in time and that history transforms in addition to passing (Latour 1999, p. 306). Thus, the way humans perceive the world has changed fundamentally over time (Fukuyama 1992, p. 62). Sometimes this change can be rather rapid. For example, in 2012 it perhaps seemed to be rather pioneering to dish out a pile of iPads to students. In 2017 the model of the iPad and version of iOS may be newer but there is a body of research (for example Clarke 2013) as well as number of unreported projects questioning the benefits of such an investment. Lack of comparisons or historical context may be an indication of dangerous, one might even say excessive, clarity. As Deleuze & Guattari (2004, 251) put it "We think we have understood everything, and draw conclusions. We are the new knights; we even have a mission." With such a level of clarity ideas for designs may become designs for ideas (Harper 2009, 138). The key here might be balance. Is there enough clarity to be understood without becoming formulaic or one-dimensional? Sticking to well-known solutions may be wise as demonstrated, but is it unusual, fresh or new?

What actually qualifies as new? Following Michel Serres (Serres & Latour 1995, p. 45) this paper asserts newness is often a change in the arrangement of elements or just slick advertising. In our example project there were several relatively new elements: Firstly there were new techniques like painting in three dimensions and photogrammetry. Both were made possible by the VR environment in conjunction with software like Tilt Brush, Blocks and Remake. Secondly the VR equipment itself was new and unusual to the participants. Rearrangement of physical space as well as training were necessary to use the HTC Vive headset, controllers and base stations with the necessary cabling and software. Nevertheless, much was already familiar to everyone involved. Only some of the painting was done in VR as the course included working with a wide array of techniques. Digital photography was still photography whether the shots were used for photogrammetry, sketching or mixed media works. This was to some extent dictated by having only one VR set available for 16 students. Nevertheless, the course was also a pedagogically sound whole with the added benefit of robustness. The occasional setbacks in the use any of the digital devices did not create major disruptions in the

work as the participants could work their other tasks while the technical issues were solved. So becoming digified indeed benefits of looking around and perhaps not going all-in with digital.

Second aspect - irreversibility

Borrowing terms across disciplines has its problems as Sokal and Bricmont (1997) among others have demonstrated. Therefore, this present paper employs the term irreversibility to a) to foster creativity (see Prigogine 2001, p. 3, 188) and b) discuss the long-term effects of decisions. Particularly decisions involving End-User License Agreements concerning immaterial property rights and similar documents are important here. Therefore, the key question of this aspect might be: Are we giving away something we cannot reclaim? If yes, who actually makes the final decision? These questions have both legal and ethical relevance mostly beyond the scope of this paper as well as limited expertise of the author. Moreover, they may be somewhat difficult to predict as information may be limited and (legal) documents are not always easy to understand. This, however, does not lessen the importance of such considerations as the following example illustrates.

During our example course there was one major irreversibility event concerning immaterial property rights. As mentioned earlier the students used iPads for photographing and sketching. In late October 2017 Apple changed the iOS settings to sync all the photos to iCloud. This created a somewhat complex situation as Finnish legislation considers photographs containing identifiable persons as personal data. And according to the same legislation transferring personal data to a third party outside the European Union is limited and may require the permission of the "data subject" (Personal Data Act 1999). Fortunately, this did not cause any substantial problems in this case as far as we know. But as such changes are hard to predict contingency plans or other forms of risk management may be worthwhile if one wishes to be digified. Unfortunately, the need for such plans may make things less easy and slower to implement.

Third aspect - speeds of change

Society and its subsystems have had problems of adjusting to technological change for a long time. Or more accurately, the tempo of change within Information Technology has been much quicker than in, say, education or law. Downes and Mui have stated in their "The Law of Disruption" that "[s]ocial, political, and economic systems change incrementally, but technology changes exponentially." (Brown & Duguid 2000, p. 84) In order to become digified, some thought should be given for the reasons behind this difference in tempi. The reason for this difference is complexity. As Luhmann (1989) put it "sociocultural evolution is based on the premiss that *society does not have to react to its environment* and that it would not have taken us where it has if it proceeded differently. Agriculture begins with the destruction of everything that had grown there before." (Luhmann 1989, p. 16)

Luhmann's view of agriculture may be a bit drastic but as Brown and Duguid (2000) point out, society needs to adjust technology to its needs, not just adjust its needs to technology. As they wonderfully demonstrate, it can have serious consequences if people are just laden with new technical means and then blamed if they do not adjust. Moreover, this mutual adjustment seems to take a couple of decades. (Brown & Duguid 2000, 70-73, 83-86) To make this more concrete to yourself you could try to remember what kind of mobile device(s) and laptop(s) you had in 1998. And more importantly, in what ways did you use them? To what extent was this use dictated by your needs and to what extent by the functionality of the device itself?

In our example course the students were not dumped to cope with the equipment but more on that in the next section. The planning, testing and practicing started in May 2017 and the first Vive VR set had been bought in late 2016. During the four months of preparations and the duration of the course changes in the used hardware and software did not cause any major problems. As HTC has already

unveiled an upgraded Vive model and Tilt Brush went to v11 to v15 between May and December 2017 it remains to be seen how the course will be realised next autumn. All in all, becoming digified by looking around and preparing contingency plans is much easier if one perceives the different rhythms and speeds of change.

Fourth aspect - sustainability

Let us assume the digital elements in a project or plan worthy, fitting, fresh and do not force us to give away anything we would like to reclaim. So far so good, but is the intended activity something we can actually sustain? Sustaining non-dominant activities tends to be difficult and vulnerable. Partially this can be explained with the previous three aspects -historicity and novelty, irreversibility, and speed of change- but as Annalisa Sannino has demonstrated resources can play a major part in abandoning an innovative and enthusiastically received practice. This practice was computer-mediated activity known as Fifth Dimension and Sannino found four categories of conflicts, namely (1) competence and agency, (2) time and effort, (3) individualized and group teaching, (4) curriculum. (Sannino 2008) All four categories were relevant to our example course, but I presume the first two categories tend to be of particular interest. According to Andrew Barry's excellent definition: technology "...refers not just to a device in isolation but also to the forms of knowledge, skill, diagrams, charts, calculations and energy which make its use possible." And even more importantly lack of access to these aforementioned resources blocks possible connections between elements. (Barry 2001, 9, 17) This is something you can try the next time you use the term technology. If you say for example “We are going to use VR technology in our course!” do you mean you are going to buy a set of VR equipment or that you also acquire skills and knowledge to use the equipment in a pedagogically sound way and deal with the processes of training the users and doing technical troubleshooting?

In our example course it was only the beginning to furnish a dedicated room for using the VR equipment for the whole autumn semester 2017. That was just the device in isolation in Barry’s terms. Let us try to use the categories of conflicts proposed by Sannino. Firstly, the students had a shared calendar for reserving the space and an access to the VR room whenever the building was open. This was access enabling agency and the investment of time and effort. Curriculum-wise the teacher of the course had been wise enough to enable this sort of courses in the recent curriculum overhauls in the University of Helsinki. The starting phase of the course was supported primarily by the teacher with the e-learning specialist as a backup. So, competence was scaffolded as necessary. The whole course resulted in less than ten phone calls to the aforementioned specialist and only three of these required a visit in the VR room to solve the issue. One contributing factor may have been the occasional meetings between the teacher and specialist for evaluation and adjustments. In hindsight the students were left to fend for themselves a bit too much. Sometimes they managed to make sound decisions but not always.

I was actually surprised how well Sannino's conclusion fit our example course: "Sustainability in this light may be reconceptualized as a process which involves transitional actions and in which dominant and non-dominant activities begin to merge and hybridize." (Sannino 2008, 337) Hybridisation is here understood as both displacements as well as mixtures of elements. (Blok & Jensen 2012, 15) Thus becoming digified involves displacing and mixing some elements while balancing the amount of change and the available resources.

Conclusion

The purpose of this paper is to facilitate rethinking digitalisation in dialogue with philosophy and social theory Therefore it is not an instrument for writing or assessing course plans or project proposals and certainly benefits from being combined with other approaches like parallel thinking. Nevertheless, it may offer some insight into what makes such projects and plans tick and in doing so

help us learn, whether succeed or fail. The point is not to oppose change or fear failure, but to opt out of some of the silliness involved. Perhaps Luhmann was right, and society really does not have to react to its environment considering how little impact keen-sighted heavy-hitters like Brown and Duguid or Serres with his Thumbelina (Serres & Smith 2014) seem to have had. Or perhaps it still is too early to say?

References

Barry, A. (2001). Political machines: governing a technological society. London; New York: Athlone Press.

Blok, A., Jensen, T. E., & Routledge. (2012). Bruno Latour: Hybrid thoughts in a hybrid world. London: Routledge.

Brown, J. S. & Duguid, P. (2000). The Social life of information. Boston (MA): Harvard Business School Press.

Clarke, D. (2013). (http://planblearning.com/articles/tablets/). Accessed 27.1.2018

Deleuze, G., & Guattari, F. (2004). A thousand plateaus: capitalism and schizophrenia. London; New York: Continuum.

Fukuyama, F. (1992). The end of history and the last man. New York: The Free Press.

Latour, B. (1999). Pandora's hope: Essays on the reality of science studies. Cambridge, Mass.: Harvard University Press.

Luhmann, N. (1989). Ecological communication. Cambridge: Polity Press

Personal Data Act. (1999). https://www.finlex.fi/en/laki/kaannokset/1999/en19990523.pdf

Prigogine, I. (2001). The end of certainty: Time, chaos and the new laws of nature. New York: Free Press.

Sannino, A. (2008). Sustaining a Non-Dominant Activity in School: Only a Utopia? Journal of Educational Change, 9(4), pp. 329-338.

Serres, M. & Latour, B. (1995). Conversations on science, culture, and time. Ann Arbor, Mich.: The University of Michigan Press.

Serres, M. & Smith, D. W. (. W. (2014). Thumbelina: The culture and technology of Millennials. London: Rowman & Littlefield International.

Sokal, A. D. & Bricmont, J. (1997). Impostures intellectuelles. Paris: Odile Jacob.

Veal, Michael E. Dub: Soundscapes and Shattered Songs in Jamaican Reggae, Wesleyan University Press, 2013. ProQuest Ebook Central,